

Wireless Sensor Networks Hw 4

In this homework you are requested to implement two routing algorithms: Flooding and Breadth-First Search. These algorithms should be implemented with TOSSIM simulator. In the first step the routing infrastructure should be implemented (For flooding operation no infrastructure is needed). After routing infrastructure is constructed, events should be routed to the sink node (Events should be random).

- Please take your measurements for networks with 10 nodes, 20 nodes and 30 nodes. Please take your measurements for 10 events, 20 events and 30 events. You should fill these table:

Sent Byte Counts	10 events	20 events	30 events
10 nodes			
20 nodes			
30 nodes			

Received Byte Counts	10 events	20 events	30 events
10 nodes			
20 nodes			
30 nodes			

Time Consumption	10 events	20 events	30 events
10 nodes			
20 nodes			
30 nodes			

- Please measure sent byte count, received byte count and time consumption to construct the routing infrastructure.
- Please measure sent byte count, received byte count and time consumption to route events (Please take the average measurements of all events).
- Draw related graphs to represent data visually and comment on the performance.
- Assume that the nodes are static and failure probabilities of nodes are very low. In this case which algorithm would you choose and why? Assume that the nodes are highly mobile and the probabilities of failure of nodes are very high. In this case which algorithm would you choose and why?
- Packets can collide and retransmissions should be needed to ensure reliable data transfer. Please use PacketAcknowledgments interface to handle acknowledgments. Also please use timers to implement a simple CSMA/CA protocol.

Please write a report which includes your measurements and their detailed comments. Please include your source codes.

Deadline: 31.May.2014 (for all students)

Submission: Please send your homework to Res. Asst. Murat Kurt to the following e-mails:

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